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### REVISED DRAFT CAPACITY-BUILDING STRATEGY FOR THE GLOBAL TAXONOMY INITIATIVE

#### *Draft recommendation submitted by the Co-Chairs of Working Group II*

The Subsidiary Body, *having reviewed* the revised draft Capacity-building Strategy for the Global Taxonomy Initiative (UNEP/CBD/SBSTTA/12), *decides* that the further revised Strategy, as annexed hereto, will be annexed to its recommendation XV/3 for consideration by the Conference of the Parties at its eleventh meeting.

*Annex*

**CAPACITY-BUILDING STRATEGY FOR THE GLOBAL TAXONOMY INITIATIVE**

1. The Global Taxonomy Initiative is a cross-cutting initiative, and its effective implementation will help to implement the Strategic Plan for Biodiversity 2011-2020 and achieve the Aichi Biodiversity Targets. The purpose of the Capacity-building Strategy for the Global Taxonomy Initiative (hereafter, “GTI Capacity-building Strategy”) is to develop the human resources and infrastructure necessary to generate, disseminate and use taxonomic knowledge and information in a manner that assists Parties, other Governments, organizations and stakeholders in effectively implementing the Convention and the Strategic Plan for Biodiversity 2011-2020 and achieving the Aichi Biodiversity Targets. This will be achieved through activities of, and collaboration with, a range of taxonomic institutions, initiatives and projects. A list of key partners is available on the CBD website at <http://www.cbd.int/gti/partner.shtml>.

2. The GTI Capacity-building Strategy also seeks to catalyse national action, in an effort to better incorporate taxonomic information and needs in national biodiversity strategies and action plans (NBSAPs). The Capacity-building Strategy is composed of a vision, a mission and actions reflecting identified priorities in the view of regional and global levels.

3. The GTI Capacity-building Strategy is a flexible framework for the development of taxonomic capacity at global, regional and national levels.

**A. Vision**

4. By 2020, the taxonomic barriers to the universal availability of scientific knowledge, data and information on biodiversity have been removed, thereby enabling their use at all levels of society in supporting decision-making with a view to achieve the three goals of the Convention.

**B. Mission**

5. By 2020, Parties, other Governments, relevant organizations and networks collaborate in implementing the actions of the GTI Capacity-building Strategy at national, regional and global levels in order to have the necessary taxonomic and human resources, including trained experts in taxonomy, technologies and infrastructure, taxonomic information, databases and data systems for use in the implementation of national biodiversity strategies and action plans, and as a contribution to achieving the Aichi Biodiversity Targets.

**C. Goals**

**Goal 1:** Parties, other Governments, relevant organizations and all other biodiversity stakeholders *appreciate* the value of taxonomic information covering all living organisms with regards to reduction of direct pressures on biodiversity, mainstreaming biodiversity and enhancing ecosystem services for human well-being.

**Goal 2:** Parties, other Governments, and relevant organizations *identify* gaps and *prioritize* capacity-building needs.

**Goal 3:** Relevant organizations, partners and local institutions, including citizen scientists, *generate* and *maintain* the taxonomic information to meet the identified taxonomic needs.

**Goal 4:** Relevant organizations, partners and networks *share* taxonomic information to enable Parties, other Governments and other stakeholders to make informed decisions on biodiversity at national, regional and global levels.

**Goal 5:** Parties to the Convention, other Governments, relevant organizations and stakeholders in the Convention process *utilize* taxonomic information to implement the Strategic Plan for Biodiversity 2011-2020 and the programmes of work under the Convention in a timely manner.

**D. Strategic actions to take in the period 2011-2020**

6. Parties, other Governments and relevant organizations and stakeholders shall consider the following actions.

**Action 1:** By the end of 2013, at the latest, review taxonomic needs and capacities at national, subregional and regional levels and set priorities to implement the Convention and the Strategic Plan for Biodiversity 2011-2020.

**Rationale:** Updated national biodiversity strategies and action plans (NBSAPs) will be reviewed at the twelfth meeting of the Conference of the Parties in 2014. The priority areas of capacity-building in taxonomy should be clearly indicated in the updated NBSAPs, based on the needs of users at all levels of society, as appropriate, before the twelfth meeting of the Conference of the Parties. This serves to articulate the needs of users for capacity-building in taxonomy that will be addressed in other actions, particularly in actions 3, 4 and 9. Action 1 explicitly addresses Aichi Biodiversity Target 17. Questionnaires for taxonomic needs and capacity assessments to be used for this purpose are accessible at <http://www.cbd.int/gti/needs.shtml>. An information document on standard format for taxonomic needs and capacity assessments for use by Parties (UNEP/CBD/SBSTTA/15/INF/4) and other useful information to conduct the assessment are also available. The review will contribute in particular to achieve goal 2 of the GTI Capacity-building Strategy - *identify* gaps and *prioritize* capacity-building needs.

**Relevant activity in the programme of work on the GTI:** Planned activity 1: Country-based taxonomic needs assessments and identification of priorities.

Outcome-oriented deliverables in decision IX/22: outputs 1.1.1 and 1.1.2.

**Output of the action:** Integration of the GTI in reviewed regional and national biodiversity strategies and action plans.

**Action 2:** By the end of 2013, organize regional and sub-regional workshops aimed at informing Parties and their CBD/GTI national focal points, representatives of ministries of science, education and conservation, and other relevant sectors about the importance of taxonomy and cooperation in this field to implement the Convention and the Strategic Plan for Biodiversity 2011-2020.

**Rationale:** This action promotes engagement of the relevant ministries and institutions in further actions between 2015 and 2020 at the national level. It enables the exchange of experiences made on linkages between the Global Taxonomy Initiative and relevant strategies, plans and programmes. It is envisaged that these workshops will facilitate the effective integration of the GTI Capacity-building Strategy into updated NBSAPs through collaboration of the relevant government sectors, *inter alia*, environment, agriculture, forestry, fisheries, science and education. Socio-economic, landscape management and development sectors may be invited to this process depending on the identified needs in action 1 as appropriate. This action addresses Aichi Biodiversity Targets 1, 17 and 19. The workshops will help to achieve goals 1 and 2 of the GTI Capacity-building Strategy - *appreciate* the value of taxonomic information and *identify* gaps and *prioritize* capacity-building needs.

**Relevant activities in the programme of work on the GTI:** All planned activities in the five operational objectives.

**Output of the action:** Engaging academics and the relevant governmental sectors to implement the GTI Capacity-building Strategy.

**Action 3:** By 2014, organize additional technical workshops and academic training to improve taxonomic skills and the quality of taxonomic knowledge and information, as well as the contribution of taxonomy for the implementation of the Convention, including access to genetic resources and the fair and equitable sharing of benefits arising from their utilization, in accordance with the Nagoya Protocol on Access and Benefit-sharing where applicable, and national legislation.

**Rationale:** The GTI Capacity-building Strategy requires well-trained professionals in taxonomy. It is necessary for professional taxonomists to improve communication and awareness raising, complementary to the scientific dissemination for popularizing taxonomic knowledge, and to make a case for taxonomy and related biodiversity sciences in the context of the implementation of the Convention on Biological Diversity and the Strategic Plan for Biodiversity 2011-2020. This action facilitates the sharing of information on the best practices and experiences between professional **taxonomists** and stakeholders involved in the implementation of the Convention. It also facilitates the development of recommended syllabus content to increase public awareness of the taxonomic information necessary to implement the Convention, while also increasing the appeal of taxonomy as a subject to students and staff working on specimen collections, and parataxonomists among others. Taxonomic needs in developing countries to address food security and other emerging issues under the Convention need to be highlighted at these workshops. This action addresses Aichi Biodiversity Targets 1 and 19. The workshops and training will contribute to achieving goals 3, 4 and 5 of the GTI Capacity-building Strategy – *generate, share, maintain* and *utilize* the taxonomic information.

**Relevant activities in the programme of work on the GTI:** All planned activities in the five operational objectives.

**Output of the action:** Trained taxonomists engaged in supporting the implementation of the Convention, through the training of, and job opportunities for professional taxonomists to facilitate capacity-building in taxonomy and facilitate their contribution to communication, education and public awareness activities in line with the implementation of the Convention and the Strategic Plan for Biodiversity 2011-2020. Awareness among taxonomic experts and stakeholders regarding taxonomic needs and requirements related to access to genetic resources and the fair and equitable sharing of benefits arising from their utilization.

**Action 4:** By 2015, produce and continue to share taxonomic tools (e.g., field guides, online tools such as virtual herbaria, genetic and DNA sequence-based identification tools such as barcoding) and risk-analysis tools in the context of invasive alien species and biosafety, taking into account the identified needs of users; and facilitate the use of those tools to identify and analyse: (i) threatened species; (ii) invasive alien species; (iii) species and traits that are useful to agriculture and aquaculture; (iv) species subject to illegal trafficking, and (v) socio-economically important species, including microbial diversity.

**Rationale:** The existing and newly produced identification tools will assist Parties in the inventorying of biodiversity, early detection of invasive alien species, and the implementation of other programmes of the Convention which require taxonomic identification. It is important to develop international technical standards and protocols for the characterization, inventory and monitoring of biodiversity for domesticated genetic resources and production environments, as appropriate. This action is especially important at the sub-specific level of taxa for some organisms where there are different sub-species, varieties, strains and biotypes that may, for example, have different levels of invasiveness, impacts in different ecosystems, or different responses or reactions to biocontrol agents. Taxonomic tools would preferably be made open-access in accordance with international standards and licence agreements for the relevant technologies. This action addresses Aichi Biodiversity Targets 1, 2, 5, 8, 9, 10, 11, 12, 13, 14 and 16. This action contributes to achieving goals 3 and 4 of the GTI Capacity-building Strategy - *generate* and *share* taxonomic information.

**Relevant activities in the programme of work on the GTI:** Planned activities 10-16 covering all thematic programmes, access and benefit-sharing, Article 8(j), invasive alien species and protected areas contained in decision VIII/3.

**Output of the action:** Species identification capacity necessary to support the implementation of the programmes of work under the Convention, including, *inter alia*, (i) prioritization and management of protected areas; (ii) agriculture and aquaculture relevant to food security; (iii) invasive alien species control and management; (iv) species inventories and monitoring.

**Action 5:** By 2015, review and enhance human capacity and infrastructure to identify and to assist monitoring of biodiversity, particularly on invasive alien species, understudied taxa, threatened and socio-economically important species among others. The review might be undertaken with regional networks and coordinated with national and international activities.

**Rationale:** In 2015, the Conference of the Parties will conduct a mid-term review of the progress on implementation of the Strategic Plan. It should include a review of the capacities to identify and monitor biodiversity which may be undertaken at the national level and/or in collaboration with regional networks. This might entail the compilation of lists of specialists, institutions and funding sources, and promoting incentives for training young taxonomists to ensure that taxonomic knowledge, skills and taxonomic collections are successfully maintained. This action addresses Aichi Biodiversity Targets 17, 19 and 20. It contributes to achieve goals 3 and 4 of the GTI Capacity-building Strategy - *generate* and *share* taxonomic information.

**Relevant activities in the programme of work on the GTI:**

Planned activity 5: Global and regional capacity-building to support access to and generation of taxonomic information, strengthening of existing networks for regional cooperation in taxonomy.

Planned activity 15: Invasive alien species.

**Output of the action:** Information for the Conference of the Parties as a contribution to the mid-term review of the Strategic Plan for Biodiversity 2011-2020. Human capacity for species identification enhanced.

**Action 6:** To the extent possible, support existing efforts to establish capacity for national and thematic biodiversity information facilities, build and maintain the information systems and infrastructure needed to collate, curate and track the use of biological specimens, in particular type specimens, and provide free and open access to the relevant biodiversity information for the public by 2016.

**Rationale:** To follow-up on capacity and infrastructure requirements reviewed in action 5 of the GTI Capacity-building Strategy, Parties, other Governments and the financial sector, including donors, need to enhance the infrastructure for taxonomic capacity-building, including developing mechanisms for the digitization of existing reference and other collections and information. This action addresses Aichi Biodiversity Targets 1, 17, 19 and 20. This action further contributes to achieving goals 3 and 4 of the GTI Capacity-building Strategy - *generate*, and *share* the taxonomic information.

**Relevant activities in the programme of work on the GTI:** Planned activity 7: Develop a coordinated global taxonomic information system in accordance with international standards and licence agreements for the relevant technologies.

**Output of the action:** Information infrastructure to meet the needs of taxonomy.

**Action 7:** By 2017, establish the human resources and infrastructure sufficient to maintain the existing collections and build further collections of biological specimens and living genetic resources in accordance with the Nagoya Protocol on Access and Benefit-sharing where applicable, and national legislation. This action may strengthen and facilitate: (i) *ex-situ* conservation of microorganisms; (ii) engagement of academics; (iii) internships, exchanges and cooperation of experts; (iv) job opportunities for taxonomists and para-taxonomists; (v) allocation of public-funds for establishment and maintenance of collections infrastructure; (vi) business- case for investment in human resources and infrastructure; (vii) access to information; and (viii) coordinated global systems of biological collections.

**Rationale:** For the identification and monitoring of biodiversity and the effective implementation of access to genetic resources and the fair and equitable sharing of benefits arising from their utilization, maintaining reference collections, reference tools, and voucher specimens are of paramount importance. This action seeks to ensure the capacity of institutions with collections of biological specimens and living genetic resources to (i) offer identification services; (ii) conduct training; and (iii) engage in international collaboration in taxonomic research. This action addresses

the taxonomic impediment stated in the Darwin Declaration<sup>1</sup> and Aichi Biodiversity Targets 17, 19 and 20. This action further contributes to achieving goals 3 and 4 of the GTI Capacity-building Strategy - *generate* the taxonomic information, and *share* taxonomic information.

**Relevant activities in the programme of work on the GTI:** Planned activity 7: Develop a coordinated global taxonomy information system in accordance with international standards and licence agreements for the relevant technologies.

**Output of the action:** Enhanced human resources, institutional infrastructure and biological collections, including *ex situ* microbial preservation facilities that serve as research tools.

**Action 8:** By 2019, improve the quality and increase the quantity of records on biodiversity in historic, current and future collections and make them available through taxonomic and genetic databases to enhance resolution and increase confidence of biodiversity prediction models under different scenarios.

**Rationale:** In 2020, the Conference of the Parties will review the implementation of the Strategic Plan for Biodiversity 2011-2020 and assess progress in achieving the Aichi Biodiversity Targets, based, *inter alia*, on the sixth national reports (decision X/9). One of the ultimate goals of the use of taxonomic information is to enhance resolution and increase confidence of models of the status of biodiversity with various scenarios of environmental pressures, such as climate change and underlying drivers of change. To fulfil this objective, the use of taxonomic and associated information on ecosystems, including genetic data, must be included in the sixth national report by Parties. This action may also reveal missing information for the period beyond 2020. This action addresses Aichi Biodiversity Targets 1, 2, 4, 5, 9, 10, 11, 12, 13, 14, 16 and 19. This action contributes to achieving goals 3, 4 and 5 of the GTI Capacity-building Strategy - *generate* the taxonomic information, *share* taxonomic information and *utilize* taxonomic information.

**Relevant activities in the programme of work on the GTI:**

Planned activity 7: Develop a coordinated global taxonomy information system.

**Output of the action:** Increased capacity of Parties to make science-based decisions utilizing information on the status of biodiversity and potential loss/restoration of species, habitat or ecosystems under the given policy-relevant scenarios.

**Action 9:** Facilitation of all-taxa inventories in targeted national and regional priority areas such as protected areas, community-conserved areas, sustainable biodiversity management zones, and socio-ecological production landscapes considered under the Satoyama Initiative and other programmes in which biodiversity inventories are a priority for decision-making.

**Rationale:** This is a catalytic action of the GTI Capacity-building Strategy, which intends to accelerate the generation of taxonomic information needed by Parties to make scientifically informed decisions on conservation and management of biodiversity. In addition, it supports the engagement of local stakeholders in biodiversity inventories. Taxonomic knowledge will be widely shared. This action enhances the involvement of taxonomists and other citizens to support conservation and sustainable use of biodiversity and increase taxonomic capacity beyond 2020. Projects may also include inventory, characterization and monitoring of the genetics of domesticated species in their production environments, such as agricultural, forests and aquaculture facilities, as appropriate, by 2019. Microbial diversity should be included where possible. Species inventories could be initiated as a priority in areas where basic species occurrence information is already available and accessible, with a view to supporting the development of national action plans and promoting conservation, sustainable use and access and benefit-sharing at the national level.

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<sup>1</sup> <http://www.cbd.int/doc/meetings/cop/cop-04/information/cop-04-inf-28-en.pdf>.

This action addresses Aichi Biodiversity Targets 1, 9, 10, 11, 12, 13, 14 and 19 and contributes to achieving all five goals of the GTI Capacity-building Strategy - to *appreciate, identify and prioritize, generate, and utilize* the taxonomic knowledge and information.

**Relevant activities in the programme of work on the GTI:**

Planned activity 4: Public awareness and education.

Planned activity 6: Strengthening of existing networks for regional cooperation in taxonomy.

Planned activity 14: Access and benefit-sharing.

All of the planned activities under operational objective 4.

**Output of the action:** Increased capacity to generate and share taxonomic information. Engagement of stakeholders in inventories. Enhancement of citizen science. Contribution to communication education and public awareness for biodiversity.

**Action 10:** Between 2018 and 2020, using, *inter alia*, the Aichi Biodiversity Target indicators relevant to taxonomy, evaluate the progress in the GTI Capacity-building Strategy at the national, regional and global levels with a view to sustaining them beyond 2020.

**Rationale:** This action seeks to ensure long-term capacity-building activities at all levels. At its meeting in 2020, the Conference of the Parties will conduct a review of the implementation of the Convention and the Strategic Plan for Biodiversity 2011-2020. At that time, capacity-building achievements in taxonomy should be assessed in parallel with progress on the achievement of the Aichi Biodiversity Targets. Using the proposed indicators for taxonomy,<sup>2</sup> progress on Target 19 and other relevant targets can be assessed by countries partaking in national and/or regional taxonomy initiatives, as well as the progress reported by Parties and other Governments. Some possible additional indicators are: (i) process indicators: number of trained people, number of people utilizing their taxonomic skills after the training, and number of workshops organized; (ii) output indicators: number of training materials produced, number of taxonomic tools, and number of outcome-oriented deliverables of the programme of work achieved; and (iii) results/progress indicators: increase in the number of taxonomic studies published (globally, per region), the number of institutions with strengthened infrastructure and the number of job opportunities for taxonomists increased. This action addresses all Aichi Biodiversity Targets, particularly 1 and 19. The review of the GTI Capacity-building Strategy will provide substantive information to be considered in the formulation of strategies beyond 2020.

**Relevant activities in the programme of work on the GTI:** Planned activity 5 but also relevant to all other planned activities of the programme of work.

**Output of the action:** Review of implementation of the GTI Capacity-building Strategy. Information for Parties to develop the Strategy beyond 2020.

***E. Implementation, monitoring, review and evaluation***

7. The GTI capacity-building strategy will be implemented in support of the programme of work for the Global Taxonomy Initiative and within the broader framework of the Strategic Plan for Biodiversity 2011-2020. Accordingly, the provisions on implementation, monitoring, review and evaluation contained in section V and the support mechanisms in section VI of the Strategic Plan for Biodiversity 2011-2020 (decision X/2) apply to the implementation of the programme of work for the GTI and the GTI Capacity-building Strategy.

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<sup>2</sup> An indicative list of indicators was agreed through recommendation XV/1.